PROGRESS ON THE OHIO STADIUM

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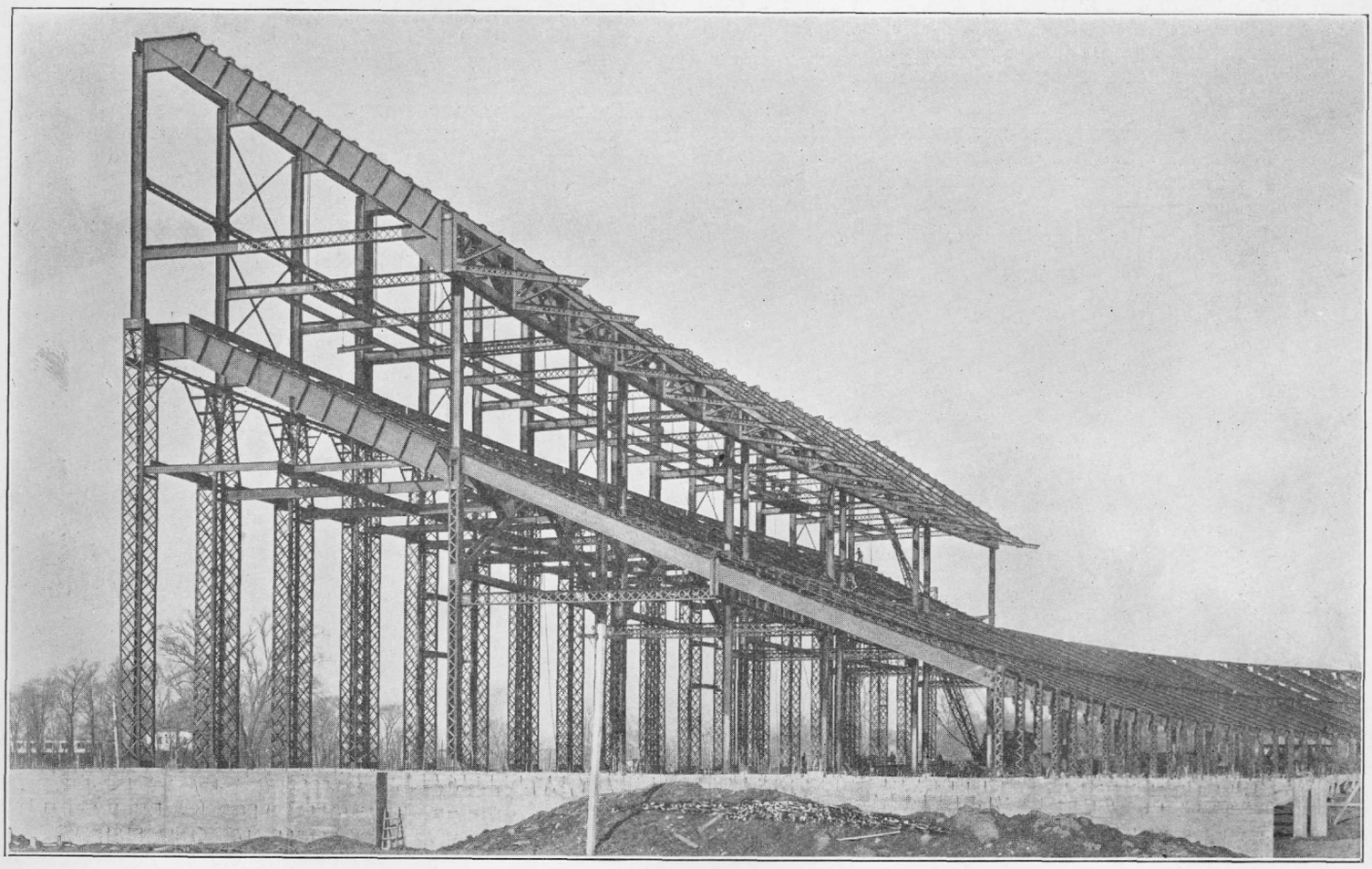

MASTODONIC SKELETON OF OHIO STADIUM
Some idea of its immensity is indicated by the size of the lone steelworker standing at the top of the lower deck, at the right of the picture's center

MUCH has been said and written concerning the preliminary work on the Ohio Stadium and it is the writer's intention in this article to deal with the progress of construction only.

With the successful close of the Stadium drive, in November, 1920, the work on the general plans and the structural design was started. An office was opened in the Shops Building and a force of Architects and Engineers was employed.

Several months was consumed in the production of a complete set of general drawings and specifications. After careful consideration it was decided that most of the framework supporting the structure would be structural steel, but since the seat banks and outside walls are of concrete, very little steel will be visible from the outside. The main reasons for the selection of a structural steel frame are that it would facilitate construction by permitting the same to be erected during the present winter, when it would be impossible to do concrete work economically, thus permitting the completion of the structure by next fall; also a considerable saving in cost is effected. Many interesting problems were encountered in determining the curves, sight lines, location of expansion joints, circulation system and best arrangement of interior supports.

TEST BORINGS

While the plans and working drawings were being made in the office, a series of test holes were being drilled on the Stadium site. A small well driller, sinking a six-inch casing, was used to drill these eighteen holes. From each hole samples of soil were taken at intervals of five feet or less, depending upon the uniformity of the strata. After the general character of the soil was determined from these tests, a bearing test was made at the location of one of the main column footings where the borings showed the materials to be of the poorest quality. The actual load applied in this test was eight tons per square foot.

PLAYING FIELD

As one of the essential parts of the Stadium is the playing field, work was started on it early in the spring of 1921. For several months the University had been dumping their cinders along the railroad fill at the north end of the Stadium

site. These cinders were used to make the first fill under the playing field, which was on an average about four feet deep. The entire fill required 12,000 cubic feet of cinders.

A dirt fill was placed on top of the cinders. The material for this fill was taken from a cut made on the east side of the Stadium site. This dirt fill brought the elevation of the field to Elevation 724 along the sides and 725 at the crown.

A herring bone drainage system was laid under the field. The laterals are three-inch farm tile laid 50 feet apart and to a depth of 1½ feet at the center line. These laterals drain into a six-inch vitrified drain tile along the sides, which are connected at the southwest corner of the field and drain off toward the river.

The field was then sowed with grass seed and rolled. A fence was built around the entire field to protect it from any damage which the workmen and spectators might cause by walking over it.

The contract drawings were completed in the office and approved by the Board of Trustees on May 25, 1921. On June 28th, 1921, bids were opened, and July 20th the contract was awarded to E. H. Latham Co. for $1,341,017.00. The usual form of state contract was used, except that the contractor and the Building Committee are to split fifty-fifty on any saving below the contract price. The Building Committee also reserves the right to authorize the contractor to proceed with the work according to the funds available.

Ground-breaking ceremonies were held early in August, 1921, at which time Governor Davis turned the first spade of earth.

LOCATION

The first big problem for the engineers after the letting of the contract was the laying out of the foundations. This work was difficult for the reason that all lines of the Stadium are curved. The main north and south axis had been established before work on the playing field had started. Starting with the zero station at the intersection of Perry St. and Woodruff Ave., the north end of the structure is located 450 feet south of this point. Two base lines were then established at a distance of 350 feet on either side and parallel to the main axis. In locating the base lines, it was found necessary, in order to get good results, to calibrate the tapes used in measuring and to make temperature corrections on all principal measurements. The actual points for the structure were located by a system of co-ordinates from these base lines.

EXCAVATION

Before starting the excavation a standard gage track was built around the entire structure, 25 feet in from the outside line of foundations. The three outside rows of footings and the north tower foundations were excavated with a clam shell bucket operated by a locomotive crane from this track. The rest of the footings, with the exception of the southwest tower, were excavated by hand. Excavation for the southwest tower was made by using a stiff leg derrick located just outside the north wall.

View showing the concrete work on the east side of the Ohio Stadium

On the east side a satisfactory bearing material was found from three to five feet below the surface of the ground. But on the west side, which is located in what was formerly the river channel, it was found necessary to excavate to a depth of 8 to 15 feet below the surface in order to secure a satisfactory bearing material. The deepest foundations for the structure are about 17 feet below the level of the playing field. In excavating for the outside line of footings, which are large and close together, it was found advisable to dig a continuous trench 15 feet wide extending from the southwest tower to the northwest tower. Wooden sheeting was used in all the excavating on the west side and around the north end.

On account of the low water level in the river, being about elevation 713, it was necessary to pump all excavations below this level. Electrically

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driven centrifugal pumps and gasoline driven diaphragm pumps were used.

CONCRETE WORK

The concrete was mixed in a central mixing plant which is located just outside the east leg of the horseshoe. A one cubic yard Smith concrete mixer is elevated so that it can be discharged into batch buckets on narrow gauge cars below.

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The sand and gravel storage bins are on the east side of the plant, elevated so as to discharge into a batch hopper on the charging floor above the mixer. The cement is in bulk and is stored directly above the charging floor and discharges through a measuring box into the batch hopper.

The open bottom batch buckets in which the concrete was transported from the mixing plant to the forms were handled on an industrial railway by a gasoline locomotive. This narrow gauge track was located about 20 feet outside the outer line of foundations. The batch buckets were lifted from the narrow gauge cars directly to the foundation forms by a locomotive crane on the standard gauge track. The buckets were opened directly into the forms and the concrete was puddled into place. For the inner line of foundations, which could not be reached by the crane, buggies were used. The consistency of the concrete necessitated a puddling gang of five or six men.

The last of the foundations for the Stadium were poured the first part of December, 1921. Foundation work had progressed so rapidly that it was possible to pour a section of the seat banks

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in the favorable weather last fall. The section poured consists of four rows of box seats and nine rows of regular seats, for a length of about one-half of the east leg of the horseshoe.

The seat banks were poured from a chute supported at both ends by moving towers. The chute followed the pitch of the seat banks, with an opening above every second riser. The concrete was placed in a hopper on the high tower by the locomotive crane, from which hopper the flow in the chute could be regulated. The specifications do not permit chuting directly into the forms, so buckets were suspended from the bottom of the chute at the openings, and the concrete dumped from them into the forms. These buckets were made with a semi-circular bottom, so as to be emptied in either direction.

The structural steel work, consisting of over 4,000 tons of steel, was fabricated by the Mt. Vernon Bridge Company and is being erected by them. All the structural steel has been delivered to the site and at present about 75 per cent has been erected. It is expected that the erection will be completed by April 1st in order to allow the general contractor to commence pouring concrete about that time.

The Building Committee has authorized the contractor to proceed with the entire structure and it is expected that the same will be near enough completed by October, 1922, to permit being used for the football games. This involves a vast amount of work on their part and they are now arranging their plant and organization to this end.

Millions of feet of lumber and a small army of carpenters, mechanics and laborers will be necessary to handle and place the 23,000 cubic yards of concrete and other materials which go into the completed structure.